

SDS Report
Report No.: MTi170104M003
Date of issue: Jan.13, 2017

Sample Name:	Lithium Polymer Battery
Model:	O-12-C-C26C
Applicant:	Vermes B.V.
Address:	Katernstraat 1 1321 NC, Almere The Netherlands

SCHENZEN MICROTEST Co., Ltd.

<http://www.mtitest.com>

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Section 1, Identification

Tested by (printed name and signature) :	Roy Qin
Reviewed by (printed name and signature) :	Iric Yang
Approved by (printed name and signature) :	Tom Xue
Testing laboratory.....:	Shenzhen Microtest Co., Ltd.
Address	No.102A & 302A, East Block, Hengfang Industrial Park, Xingye Road, Xixiang, Bao'an District, Shenzhen, Guangdong, China.
Tested Date..... :	2017-01-03 to 2017-01-13
Chemical Product and Company Identification:	
Product Name.....:	Lithium Polymer Battery
Trade Mark.....:	N/A
Model	O-12-C-C26C
Nominal Voltage	11.1V
Rated Capacity	75Wh
Weight.....:	About 220.0 g
Dimension.....:	T:11.0mm, W:70.0 mm, H:125.0 mm
Manufacturer's Name.....:	Vermes B.V.
Address.....:	Katernstraat 1, 1321 NC, Almere, The Netherlands
Contact information.....:	Mob: +31 (0)36 531 3554
E-mail address.....:	s.murguzovic@vermes.nl
Version number	V1.0
Referenced documents.....:	ISO 11014:2009 Safety data sheet for chemical products

Section 2, Hazard(s) identification

Preparation hazards and classification

Not dangerous with normal use. Do not dismantle, open or shred Lithium Polymer Battery. Exposure to the ingredients contained within or their ingredients products could be harmful.

Appearance, Color, and Odor

Solid object with no odor, silvery

Primary Route(s) of Exposure

These chemicals are contained in a sealed stainless-steel enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact

Potential Health Effects:

ACUTE (short term): see Section 8 for exposure controls in the event that this Battery has been ruptured, the electrolyte solution contained within the Battery would be corrosive and can cause burns.

Inhalation: Inhalation of materials from a sealed battery is not an expected route of exposure. Vapors or mists from a ruptured battery may cause respiratory irritation.

Ingestion: Swallowing of materials from a sealed battery is not an expected route of exposure. Swallowing the contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

Skin: Contact between the battery and skin will not cause any harm. Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

Eye: Contact between the battery and the eye will not cause any harm. Eye contact with contents of an open battery can cause severe irritation or burns to the eye.

CHRONIC (long term): see Section 11 for additional toxicological data

Medical Conditions Aggravated by Exposure

Not applicable

Reported as carcinogen

Not applicable

Section 3, Composition/information on ingredients

Lithium Polymer Battery is a mixture.

Hazardous Ingredients (Chemical Name)	Concentration or concentration ranges (%)	CAS Number
SBR (CF ₂ -CF ₂) _n	0.28%	9003-55-8
Acetylene Black (C)	0.52%	1333-86-4
PVDF(-[-CH ₂ -CF ₂ -] _n)	0.9%	24937-79-9
Cobalt lithium dioxide (CoO ₂ Li)	35.4%	12190-79-3
Graphite(C)	18.4%	7782-42-5
lithium hexafluorophosphate (LiPF ₆)	0.3%	21324-40-3
Electrolyte(proprietary)	38.1%	21324-40-3 96-49-1 616-38-6 623-53-0
PCB	3.9%	N/A
Other	2.2%	N/A

Labeling according to EC directives.

No symbol and risk phrase are required.

Note: CAS number is Chemical Abstract Service Registry Number. N/A=Not apply

Section 4, First-aid measures

Inhalation

If contents of an opened battery are inhaled, remove source of contamination or move victim to fresh air. Obtain medical advice.

Skin contact

If skin contact with contents of an open battery occurs, as quickly as possible remove contaminated clothing, shoes and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation or pain persists, seek medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

Eye contact

If eye contact with contents of an open battery occurs, immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes while holding the eyelids open. Neutral saline

solution may be used as soon as it is available. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto face. Quickly transport victim to an emergency care facility.

Ingestion

If ingestion of contents of an open battery occurs, never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. Do not induce vomiting. Have victim drink 60 to 240 mL (2-8 oz.) of water. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

Section 5, Fire-fighting measures

Flammable Properties

In the event that this battery has ruptured, the electrolyte solution contained within the battery would be flammable. Like any sealed container, battery cells may rupture when exposed to excessive heat; this could result in the release of flammable or corrosive materials.

Suitable extinguishing Media

Use extinguishing media suitable for the materials that are burning.

Unsuitable extinguishing Media

Not available

Explosion Data

Sensitivity to Mechanical Impact: This may result in rupture in extreme cases

Sensitivity to Static Discharge: Not Applicable

Specific Hazards arising from the chemical

Fires involving Lithium Polymer Battery can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended to extinguish the fire

Protective Equipment and precautions for firefighters

As for any fire, evacuate the area and fight the fire from a safe distance. Wear a pressure-demand, self-contained breathing apparatus and full protective gear. Fight fire from a protected location or a safe distance. Use NIOSH/MSHA approved full-face self-contained breathing apparatus (SCBA) with full protective gear.

NFPA

Health: 0 Flammability: 0 Instability: 0

Section 6, Accidental release measures

Personal Precautions, protective equipment, and emergency procedures

Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8.

Environmental Precautions

Prevent material from contaminating soil and from entering sewers or waterways.

Methods and materials for Containment

Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.

Methods and materials for cleaning up

Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

Section 7, Handling and storage

Handling

Don't handling Lithium Polymer Battery with metalwork. Do not open, disassemble, crush or burn Battery. Ensure good ventilation/ exhaustion at the workplace.

Prevent formation of dust.

Information about protection against explosions and fires: Keep ignition sources away- Do not smoke.

Storage

If the Lithium Polymer Battery are subject to storage for such a long term as more than 6 months, it is recommended to recharge the Lithium Polymer Battery periodically.

Storage Temperature

Short period less than 3 months: -20°C~+40°C

Short period less than 1 year: -20°C~+25°C

Humidity : 60±25%RH

Do not storage Lithium Polymer Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. Do not expose Lithium Polymer Battery on heat or fire.

Avoid storage in direct sunlight. Do not store together with oxidizing and acidic materials. Keep container tightly sealed.

Section 8, Exposure controls/personal protection

Engineering Controls

Use local exhaust ventilation or other engineering controls to control sources of dust, mist, fumes and vapor.

Keep away from heat and open flame. Store in a cool, dry place.

Personal Protective Equipment

Respiratory Protection: Not necessary under normal conditions.

Skin and body Protection: Not necessary under normal conditions, Wear neoprene or nitrile rubber gloves if handling an open or leaking battery.

Hand protection: Wear neoprene or natural rubber material gloves if handling an open or leaking battery.

Eye Protection: Not necessary under normal conditions, Wear safety glasses if handling an open or leaking battery.

Other Protective Equipment

Have a safety shower and eye wash fountain readily available in the immediate work area.

Hygiene Measures

Do not eat, drink, or smoke in work area. Maintain good housekeeping.

Section 9, Physical and chemical properties

Physical State

Form: Solid

Color: Silvery

Odor: Monotony

Change in condition:

pH, with indication of the concentration	Not applicable
Melting point/freezing point	Not available.
Boiling Point, initial boiling point and Boiling range:	Not available.
Flash Point	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor Pressure:	Not applicable
Vapor Density: (Air = 1)	Not applicable
Density/relative density	Not available.
Solubility in Water:	Insoluble
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Odor threshold	Not available.
Evaporation rate	Not available.
Flammability (soil, gas)	Not available.
Viscosity	Not applicable
Stability	The product is stable under normal conditions.
Conditions to Avoid (e.g.) static discharge, shock or vibration)	Do not subject Lithium Polymer Battery to mechanical shock. Vibration encountered during transportation does not cause leakage, fire or explosion. Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.
Incompatible Materials Hazardous Decomposition Products	Not Available This material may release toxic fumes if burned or exposed to fire
Possibility of Hazardous Reaction	Not Available

Section 10, Stability and reactivity

Stability

The product is stable under normal conditions.

Conditions to Avoid (e.g. static discharge, shock or vibration)

Do not subject Lithium Polymer Battery to mechanical shock.

Vibration encountered during transportation does not cause leakage, fire or explosion.

Do not disassemble, crush, short or install with incorrect polarity. Avoid mechanical or electrical abuse.

Incompatible Materials

Not Available

Hazardous Decomposition Products

This material may release toxic fumes if burned or exposed to fire

Possibility of Hazardous Reaction

Not Available

Section 11, Toxicological information

Irritation	Risk of irritation occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, irritation to the skin, eyes and respiratory tract may occur.
Sensitization	Not Available
Neurological Effects	Not Available
Teratogenicity	Not Available
Reproductive Toxicity	Not Available
Mutagenicity (Genetic Effects)	Not Available
Toxicologically Synergistic Materials	Not Available

Section 12, Ecological information

General note:	Water hazard class 1 (Self-assessment): slightly hazardous for water. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impact/ecotoxicity	Not Available
Mobility in soil	Not Available
Persistence and Degradability	Not Available
Bioaccumulation potential	Not Available
Other Adverse Effects	Not Available

Section 13, Disposal considerations

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the battery terminals to insulate them. Don't disassembly the battery. Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

Section 14, Transport information

For the international transport of lithium batteries, they must comply with these regulations: The International Maritime Dangerous Goods (IMDG) Code by International Maritime Organization (IMO), Dangerous Goods Regulations (DGR) by International Air Transport Association (IATA) and Technical Instructions for the Safe Transport of Dangerous Goods by Air by International Civil Aviation Organization (ICAO). These regulations are based on the UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria.

Lithium batteries which meet the requirements of UN38.3 (UN Manual of Tests and Criteria, Part III, subsection 38.3) could be transported by air and by sea as ordinary goods, otherwise should be transported according to Class 9, Packing Group II hazardous goods.

1. For Lithium battery, UN 3480 or UN 3481. Lithium ion batteries or Lithium ion batteries contained in equipment or Lithium ion batteries packed with equipment.
2. The consignment should be fully described by proper shipping name and packed, marked and in proper condition for carriage by air. The consignment is not classified as dangerous under the current edition of the IATA 58th Effective, Dangerous goods regulation and all applicable carrier and government regulations.
3. For transported by air, Lithium-ion Cells/batteries shipped as "Not Restricted" Cargo must comply with Section II/Section IB of PI965 or Section II of P966-PI967 accordingly; For cells, the Watt-hour rating should not be more than 20Wh; For batteries, the Watt-hour rating should not be more than 100Wh. Watt-hour rating must be marked on the outside of the battery case (marked by manufacturer).
4. Each consignment must be accompanied with a document such as an air waybill with an indication. For those Lithium ion cells/ batteries contained in equipment, the equipment must be equipped with an effective means of preventing accidental activation. The telephone number for additional information for Vermes B.V. is +31-36 531 3554.
5. Quantity per package shall not exceed 10kg in Section IB of PI965. Quantity per package shall not exceed 5kg in Section II of PI966-PI967.
6. For only lithium battery transparent or lithium battery packed with equipment transparent, each package must be capable of withstanding a 1.2m drop test in any orientation without damage of cells or batteries contained therein.
7. Lithium Polymer Battery which meet the requirements of O-12-C-C26C could be transported by air and by sea, and the batteries manufactured Vermes B.V. meet these requirements. (O-12-C-C26C Lithium Polymer Battery identified by the manufacturer as being defective for safety reasons or that have been damaged, that have the potential of producing a dangerous evolution of heat, fire or short circuit are forbidden for transport.)
8. Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit.

Section 15, Regulatory information

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous Non-hazardous

Section 16, Other information

The information above is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall we be liable for Any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, however arising from using the above information.

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